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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/698,556

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Kaoru Okitaka

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10/29/2008

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EXAMINER

KIM, EUNHEE

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

10/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/698,556	Applicant(s) OKITAKA, KAORU	
	Examiner Eunhee Kim	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/07/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 07/07/2008 has been received and considered. Applicant is informed that the examiner of record has been changed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (US 6,704, 693) in view of Yu et al. (US 6,096,088).

Fan et al. teaches a geometric model conversion method of converting a three-dimensional CAD geometric analytical model of a thin-walled structure into a two-dimensional analytical model (Col. 2 lines 12-67), comprising;

a step of generating a plurality of tetrahedral solid elements each of which has single-layered structure in a plate thickness direction, by dividing an input three-dimensional CAD geometric analytical model which has a thin-walled structure (Col. 2 lines 12-67, Figures 2 and 3b and the description), a surface and an opposing point of the tetrahedral solid element being in contact with two opposite surfaces of the thin-walled structure, or two sides of the tetrahedral solid element being in contact with two opposite surfaces of the thin-walled structure (Fig. 8),

a step of generating intermediate nodes of sides that extend in a direction of plate thickness in each tetrahedral solid element (Col. 1 lines 60-64, Col. 7 lines 61-67, Col. 8 lines 1-4),

a step of connecting the intermediate nodes to generate a plurality of triangular shell elements or rectangular shell elements as the two-dimensional analytical model (Fig. 8 & 4, Col. 6 lines 41-49, Col. 7 lines 51-60), and

a step of executing an injection molding analysis with respect to each shell element of the two-dimensional analytical model generated in said connecting step and outputting results of the injection molding analysis (Abstract, Col. 1 lines 15-22).

Fan et al. does not explicitly teach a single layered structure in the plate thickness direction.

Yu et al. teaches a single layered structure in the plate thickness direction (Figure 7B).

Fen et al. and Yu et al. are analogous art because they are both related to a structural analysis.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to include a single layered structure of Yu et al., with the method for the structural analysis of component of Fan et al. because using a single layered structure is a well-known process to a skilled artisan in a method of structural analysis of component. Yu et al. teaches an improved system that ensures fidelity and reduces the computation time on the model (Col. 1 lines 30-55)

Response to Arguments

3. Applicant's arguments filed 07/07/2008 have been fully considered but they are not persuasive.

Applicants have argued that:

In contrast to Applicant's claimed invention, however, the Fan patent is not understood to teach or suggest a geometric model conversion method that includes, among other features, generating a plurality of tetrahedral solid elements, with a surface and an opposing point of the tetrahedral solid element being in contact with two opposite surfaces of a thin-walled structure, or two sides of the tetrahedral solid element being in contact with two opposite surfaces of the thin-walled structure, and connecting intermediate nodes to generate a plurality of triangular shell elements or rectangular shell elements as the two-dimensional analytical model.

The examiner disagrees, and takes the position that Fan et al. teaches the cited limitation in Fig 8.

Applicants have argued that:

It is respectfully submitted, however, that Fan starts from a solid model and meshes the outer surface using triangular or quadrihedral elements (column 7, lines 50-55). Fan does not teach or suggest the generation of a plurality of tetrahedral solid elements and generating a plurality of triangular shell elements or rectangular shell elements by connecting intermediate nodes in the manner set forth in Applicant's invention.

The applicants merely allege that Fan et al. does not teach plurality of tetrahedral solid elements and generating a plurality of triangular shell elements or rectangular shell elements.

Fan et al. teaches the mesh defining the rectangular bar which is defined be to the set of quadrilateral shell elements. See Fig. 4 Col. 6 lines 43-49, and Col. 7 lines 51-53.

In order to introduce a number of concepts, a thin rectangular bar of thickness t is depicted, by way of example, in FIG. 4. The structural response of the bar is represented by means of a shell model that is defined as the mesh on the exterior of the body. In FIG. 4, the mesh defining the rectangular bar is defined to be the set of quadrilateral shell elements defined by placing nodes at the vertices indicated as follows:

Start from a solid model, utilize the outer surfaces which define the three dimensional object to create a computational domain rather than a midplane surface. Mesh the outer surface using triangular or quadrilateral element. The computational domain would comprise meshed representations of first and second generally opposed surfaces of a part. For example, the mesh or computational domain of a T-shape part is shown in FIG. 8.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunhee Kim whose telephone number is 571-272-2164. The examiner can normally be reached on 8:30am-5:00pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eunhee Kim/
Examiner, Art Unit 2123

/Paul L Rodriguez/
Supervisory Patent Examiner, Art Unit 2123